What is claimed is:

1. An optical frequency converter, comprising:

means for modulating light of predetermined frequency with a modulation signal to obtain a group of sidebands thereof;

means for selecting sidebands from among the group of sidebands; and

means for changing frequency of the modulation signal and selecting a predetermined sideband.

2. An optical frequency converter, comprising:

means for modulating light of predetermined frequency with a modulation signal to obtain an n-th order group of sidebands thereof where n is a predetermined integer of 1 or more;

means for modulating the n-th order group of sidebands to obtain an n+1-th order group of sidebands;

means for selecting predetermined sidebands from among a group of numerous sidebands; and

means for changing frequency of the modulation signal and changing a predetermined sideband.

3. An optical frequency converter according to claim 1 that includes reflecting means for folding an optical path in the optical frequency converter.

4. An optical frequency converter according to claim 2 that includes reflecting means for folding an optical path in the optical frequency converter.

5. An optical frequency converter according to claim 1 that includes one or more modulation means to at least one of which modulation means are input a group of different-order sidebands.

6. An optical frequency converter according to claim 2 that includes one or more modulation means to at least one of which modulation means are input a group of different-order sidebands.

7. An optical frequency converter according to claim 3 that includes one or more modulation means to at least one of which modulation means are input a group of different-order sidebands.

8. An optical frequency converter according to claim 4 that includes one or more modulation means to at least one of which modulation means are input a group of different-order sidebands.

9. An optical frequency converter according to claim 3 that includes first reflecting means that transmits light of the predetermined frequency prior to modulation, and second reflecting means having a plurality of transmission bands.

10. An optical frequency converter according to claim 4 that includes first reflecting means that transmits light of the predetermined frequency prior to modulation, and second reflecting means having a plurality of transmission bands.

11. An optical frequency converter according to claim 1 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow-bandpass filter.

12. An optical frequency converter according to claim 2 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

13. An optical frequency converter according to claim 3 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

14. An optical frequency converter according to claim 4 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

15. An optical frequency converter according to claim 5 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

16. An optical frequency converter according to claim 6 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

17. An optical frequency converter according to claim 7 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

18. An optical frequency converter according to claim 8 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow-bandpass filter.

19. An optical frequency converter according to claim 9 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

20. An optical frequency converter according to claim 10 that includes first reflecting means comprised of a laser light source and a first narrow-bandpass filter, and second reflecting means comprised of an optical modulator and a second narrow bandpass filter.

21. An optical frequency converter according to claim 1 that further comprises means for changing a length of an optical path of the optical frequency converter.

22. An optical frequency converter according to claim 2 that further comprises means for changing a length of an optical path of the optical frequency converter.

23. An optical frequency converter according to claim 3 that further comprises means for changing a length of an optical path of the optical frequency converter.

24. An optical frequency converter according to claim 4 that further comprises means for changing a length of an optical path of the optical frequency converter.

25. An optical frequency converter according to claim 5 that further comprises means for changing a length of an optical path of the optical frequency converter.

26. An optical frequency converter according to claim 6 that further comprises means for changing a length of an optical path of the optical frequency converter.

27. An optical frequency converter according to claim 7 that further comprises means for changing a length of an optical path of the optical frequency converter.

28. An optical frequency converter according to claim 8 that further comprises means for changing a length of an optical path of the optical frequency converter.

29. An optical frequency converter according to claim 9 that further comprises means for changing a length of an optical path of the optical frequency converter.

30. An optical frequency converter according to claim 10 that further comprises means for changing a length of an optical path of the optical frequency converter.

31. An optical frequency converter according to claim 11 that further comprises means for changing a length of an optical path of the optical frequency converter.

32. An optical frequency converter according to claim 12 that further comprises means for changing a length of an optical path of the optical frequency converter.

33. An optical frequency converter according to claim 13 that further comprises means for changing a length of an optical path of the optical frequency converter.

34. An optical frequency converter according to claim 14 that further comprises means for changing a length of an optical path of the optical frequency converter.

35. An optical frequency converter according to claim 15 that further comprises means for changing a length of an optical path of the optical frequency converter.

36. An optical frequency converter according to claim 16 that further comprises means for changing a length of an optical path of the optical frequency converter.

37. An optical frequency converter according to claim 17 that further comprises means for changing a length of an optical path of the optical frequency converter.

38. An optical frequency converter according to claim 18 that further comprises means for changing a length of an optical path of the optical frequency converter.

39. An optical frequency converter according to claim 19 that further comprises means for changing a length of an optical path of the optical frequency converter.

40. An optical frequency converter according to claim 20 that further comprises means for changing a length of an optical path of the optical frequency converter.